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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/746,018	12/26/2000	Jung-Yu Lee	Q62414	2272
7590 12/03/2003				
THOMAS T MOGA DICKINSON WRIGHT PLLC 1901 L STREET NW SUITE 800 WASHINGTON, DC 20036			EXAMINER NGUYEN, DILINH P	
			ART UNIT 2814	PAPER NUMBER

DATE MAILED: 12/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Applicant(s)	LEE ET AL.	
	Examiner	Art Unit	
	09/746,018	2814	
	DiLinh Nguyen		

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-9, 11, 12 and 27-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-9, 11, 12 and 27-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities:

In line 19, page 6, the phrase: "...the substrate 20 via the conductive traces 20..." is not understood.

Appropriate correction is required.

Title

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Drawings

Figures 1-2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 7, 9, 11, 27-28 and 30-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishida et al. (U.S. Pat. 5108955).

- Regarding claims 7 and 27-28, Ishida et al. disclose a semiconductor package (fig. 11), comprising:
 - a substrate 2;
 - a die 1 located and supported on the substrate with an adhesive layer between them;
 - a plurality of signal transferring means which electrically connects the die to the substrate;
 - a molding compound 6 which seals and protect the die and the plurality of signal transferring means, wherein the molding compound has geometrically a recessed portion located a the top surface of the center part, wherein the die is located right below the recessed portion and fully covered by the molding compound, so that the thickness of the molding compound above the die is less than the thickness on the other portions of the molding compound; and
 - a heat spreading device 8 is attached atop the molding compound to conduct heat from the die to ambient air, wherein the heat spreading device has a downward bump aligned to the recessed portion, and the molding compound exists between the downward bump and the die; and
 - a plurality of conductive means 20 attached below the substrate to electrically connect a plurality of conductive traces on the substrate to external circuits.
- Regarding claims 9 and 30, Ishida et al. disclose the plurality of signal transferring means can be a plurality of bonding wires.

- Regarding claims 11 and 31, Ishida et al. disclose the heat spreading device can be made of metal (abstract).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 8, 12, 29 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida et al. (U.S. Pat. 5108955) in view of Barrow (U.S. Pat. 6146921).

- Regarding claims 8 and 29, Ishida et al. fail to disclose the plurality of conductive means includes a plurality of solder balls.

Barrow discloses a semiconductor device (fig. 1, column 2, lines 16 et seq.) comprising: plurality of conductive means includes a plurality of solder balls 18. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Ishida et al. to occupy a small area and has a high packaging density, as shown by Barrow.

- Regarding claims 12 and 32, Barrow discloses a die 12 has a thermally conductive glue 30, which conduct heat from the die through the molding compound 22 to the heat spreading device 32.

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to DiLinh Nguyen whose telephone number is (571) 272-1712. The examiner can normally be reached on 8:00AM - 6:00PM (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

DLN
November 26, 2003



LONG PHAM
PRIMARY EXAMINER